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# An improved Continuous Flow Analysis (CFA) system for Ice Core Analysis.

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Among the different analysis technologies to obtain climatic information of the past from ice cores, Continuous Flow Analysis (CFA) is a very efficient analytical setup especially in terms of decontamination, spatial resolution and daily throughput performance.

In a major effort to rebuild a complete CFA system new analytical components of the water and the gas phase were implemented and many of the basic components (e.g. melting unit, valves, detectors, etc.) were improved towards a higher robustness and compactness of the setup. New data acquisition hardware was introduced and temperature controlled modules for the chemical components were developed. Measurement conditions were significantly stabilized.

Using this new system, we show recent measurements on the NGRIP ice core with our new system, including all chemical components (HCHO, $H_2O_2$, DOC, $Na^+$, $Ca^{2+}$, $NH_4^+$, $NO_3^-$, $SO_4^{2-}$, electrolytical conductivity, insoluble dust particles) and total air content (TAC), as well as the newly implemented trace gas analysis of $CH_4$.

The new temperature control of analytical manifolds allows us to minimize the influence of temperature drifts and changes which is of particular interest for field measurements. The temperature dependence of sensitivities and detection limits of different chemical components was investigated. We show the relative response of some components to temperature variations and key features of the temperature control device.